



Fermilab

p̄ Note #385

Debuncher Stochastic Cooling PU and Kicker Apertures

J. Marriner

5/16/84

J. Marrison #50
5/16/84

Debuncher Stochastic Cooling PU + Kicker Apertures

The Debuncher stochastic cooling pickup gaps must be small to achieve good sensitivity. However, they must not be an aperture restriction for a 20π mm-mrad beam in a non-ideal (but corrected) machine. The minimum gap size has been specified by Ruggiero*

$$\text{Gap} = \text{Nominal beam size} + 4\text{mm} \sqrt{\frac{\beta}{20}}$$

where β is the local beta function in meters. This criterion is equivalent to sizing the gaps for a ~~20~~ 25π mm-mrad beam. The pickup positions are shown on drawings ME 196473 thru ME 196476. The gap sizes are given in the attached table. Note that the gap sizes are minimum gap sizes; actual gap sizes will be slightly larger to allow for construction tolerances.

* Ruggiero, private communication.

5/16/84

PICKUPS

NAME	UPSTREAM GAP (IN)	DOWNSTREAM GAP (IN)
V1	1.122	.951
V2	0.981	1.203
H1	1.054	.909
H2	.982	1.226
V3	1.036	.814
V4	.810	1.036
H3	1.236	1.007
H4	1.004	1.195

KICKERS

V1	1.132	.959
V2	.992	1.216
H1	1.045	.962
H2	.985	1.230
V3	1.032	.811
V4	.813	1.039
H3	1.230	1.003
H4	1.007	1.198

Beam tubes are tapered linearly
between gaps.